Request for a Three-Month Extension of Time, making this response due by September 2, 2000 (or Tuesday, September 5, 2000 after the Labor Day Holiday).

Claims 1 through 16 are pending in the application.

Claims 1 through 16 now stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,874,170 to Heine in view of either U.S. Patent No. 5,958,532 to Krause et al or EP 551,094 A1 to Krause.

Applicant respectfully disagrees with the Examiner's conclusion that the references, as combined, make obvious the claimed invention. The present invention, as claimed, provides patentable distinctions neither shown nor suggested by the cited references.

More specifically, with the present invention, the surfaces of the polyfluorocarbon portion are chemically and morphologically altered through the plasma treatment process (Please see specification, page 3, lines 7 through 11). Krause et al does not show or suggest this feature. In column 2, lines 9 through 13 of Krause et al, it is specifically provided that various microscopic techniques show that no significant changes occur to the physical structure of the substrate surface following the described corona or plasma treatment. On the contrary, in the present invention, the surface of the substrate shows significant changes after plasma activation, upon examination by an electron microscope, through the micro-sandblasting effect (Please see page 3, lines 9 through 11 of the specification).

Likewise, the patent to Heine et al does not suggest the present invention. Heine et al describes a sealing member or gasket whose carrier body 2, 2' is comprised of plastic and is connected to a sealing member 4, 4' made of PTFE. As is specifically provided in claim 1 and 2 of the Heine patent, as well as in column 2, lines 48-53, a substance-lock connection between the plastic material of the sealing

member 4, 4' and the plastic material of the carrier body 2, 2' is obtained by adding to the PTFE compound material of the sealing member a small quantity of the plastic material of which the carrier body is made. This connection should result from the fusing of the sealing member 4, 4' with the plastics of the carrier body 2, 2' by injection molding. Heine does describe with this disclosure the state of the art, which is also set forth in the specification of the present invention (Please see page 2, lines 3-11).

However, in column 3, lines 8-11 of Heine, a plasma polymerization process is described in which the plastic of the carrier body 2, 2' is added to the PTFE-portion 4, 4'. This plasma polymerization process has nothing to do with the plasma activation process of the present invention.

Specifically, the plasma activation process of the present invention works a chemical and morphological change on the surface of the polyfluorocarbon substance, which is necessary for superior adhesive strength. The plasma activation leads to a micro-sandblasting effect and/or to chemical changes in the micro area at the surface of the connecting portion 7 of portion 6, 28. By this micro-sandblasting effect, a plasma-typical surface structure is provided, which, for example, can be clearly seen with an electron microscope. By this plasma treatment, the surface of the material (i.e., the boundary layer) is so modified in its microstructure and in its chemical molecular composition that other materials can be permanently and fixedly connected. The connection with these other materials is achieved through micro-mechanical and micro-chemical processes. For example, elastomeric material, i.e., melted plastic, is received into the micro-cavities to form a chemical connection between the materials.

Under plasma polymerization, as used in Heine et al, a plastic-like layer is

created from the gas phase and, therewith, a coating process, without altering the chemical surface structure of the basic material. The polymer layer is made in plasma through the use of processing gases. With the portions so treated, an analysis scale can be determined, also according to weight increments of the coating.

The substance connection of Heine et al should be achieved through fusing of the plastic components by injection of the plastic material of the carrier body 2, 2' on the PTFE-sealing element in the injection mold (column 3, lines 20-27). The substance-lock connection of Heine is therefore achieved solely through this fusing, a type of welding.

The patent to Krause et al also discloses the manufacture of a tube-shaped composite line, which is made by an extrusion process. For such lines, only very minimal adhesion between the various materials is required. In contrast, with the present invention the objective is to achieve a much more secure mechanically and thermally stressable adhesive connection between the plasma-activated polyfluorocarbon and an elastomeric material, or a hard plastic. By way of example, Figure 1 of the present application shows a seal. It is obvious that in use, the sealing element 6 must not be loosened from the cover 5 in the area of the connecting portion 7. Accordingly, the connection between the connecting portion 7 and the connecting portion 10 of the cover must be so secure that even with higher loads or stress, the connecting portion 7 cannot be loosened or removed from the cover 5.

In order to achieve such a high adhesive strength, the plasma activation is carried out in a vacuum using a high density of energy and corresponding processing gas. (Please see specification, page 8, line 19 through page 11, line 14).

In contrast, Krause et al discloses that the goal of improving adhesion for the described use of a composite line from plasma discharge or corona treatment of the fluoropolymer (column 5, lines 18-22) can be achieved without supplementary adhesion means. The plasma discharge or corona treatment described by Krause et al is performed, however, under normal pressure and does not require a vacuum.

Also, with composite lines, no high adhesion force between the layers is necessary. The adhesion must only be so great that shifting or separation of the inner layers and outer layers is prevented.

In contrast, with the present invention, a very high adhesion is not only attained but also necessitated. As shown in Fig. 1 of the present invention, the adhesion between the connecting portion 7 and the connecting portion 10 of the cover must be so strong that even with flat stress or load, the connection is not separated. For example, if the sealing element 6 in Fig. 1 were to move left against the support body 1, drawing the cover away, and rest upon it, the described load or stress would occur. Through the described plasma treatment, the material connection is so secure that the connecting portion 7 would not be separated from the cover 5, even if the force were very high.

Therefore, Applicant submits that the claims include patentably distinct features neither shown nor suggested by the cited references as combined. Claim 16 specifically claims that the connecting portion (7) is "activated by plasma treatment" for achieving the desired connection, a feature not suggested by the cited references.

In light of the foregoing remarks in support of patentability, Applicant respectfully submits that the claims are indeed allowable over the art of record, and action to this end is courteously solicited. Should the Examiner have any further

comments or suggestions, the undersigned would very much welcome a telephone call from him in order to discuss appropriate claim language that will place the application into condition for allowance.

Respectfully submitted,

Robert W. Becker

Robert W. Becker, Reg. No. 26,255
For Applicant

ROBERT W. BECKER & ASSOCIATES
11896 N. Hwy. 14, Suite B
Tijeras, New Mexico 87059

Telephone: 505 286 3511
Telefax: 505 286 3524

RWB:mac